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Utah Watershed Review

Vol. 7, No. 2 Utah's Nonpoint-Source Water-Quality Newsletter May 1999

Manure Mania!

Final National CAFO Strategy Released

John and Maria Nye or Millard County are concerned about what the new federal Concentrated Animal Feeding Operation (CAFO) Strategy will mean to them. Russ _____ and Scott ____, each of Box Elder County are concerned. In San Pete County, NRCS employees are putting together summer training sessions about manure management for concerned Turkey growers and other livestock producers in that county.

In all areas of Utah livestock producers are wondering how the new strategy will affect them.

On the national political front, the release of the final strategy by Vice President Al Gore in March was met with mixed reactions. While most agencies and farm organizations consider the strategy to be generally fair and thoughtful, there is a great deal of concern that the Natural Resources Conservation Service will not be able to carry the burden of writing Comprehensize Nutrient Management Plans (CNMPs) for the estimated 450,000 animal feeding operations throughout the country.

"I am afraid that the USDA will either pass the buck to the EPA for enforcement or divert [its] manpower away from efforts to deliver on the many programs important to agriculture in this country," said Larry Combest, (R-Texas) House agriculture committee chairman. "The true test is whether these Washington-know-it-all rules will match the common sense of farmers and stockmen who depend on this water..."

Elements of the national strategy that will have to be completed or at least overseen by government agencies include:

- Conducting watershed assessments
- Conducting inventories of farms and ranches
- Assisting in writing CNMPs
- Conducting inspections of CAFOs
- Monitoring water bodies for water quality improvements

Of these elements, understaffed and overextended employees of NRCS will

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1999 NPS Conference Registration packets Available

"Experience Your Watershed: Hands-on Water Quality" is the theme of the 1999 Utah Nonpoint Source Water Quality Conference.

As the theme suggests, this year's conference will emphasize hands-on experiences. The conference will be divided into three tours and training experiences. Participants will get to collect aquatic insects from the bottom of the stream, measure the physical characteristics of the stream and conduct some basic water chemistry tests. Another day will be dedicated to soil and nutrient testing, and manure management techniques. A third day will be spent understanding more about the relationship between water fowl and water quality. A field trip to the Great Salt Lake will be followed by classroom discussions about the impacts of pollution on birds and other wildlife.

Agenda and registration forms are available on pages 4-5.

Farm Bureau Hires Water Quality Specialist

The Utah Nonpoint Source (NPS) Task Force and the Utah Farm Bureau Federation have joined forces to help farmers and ranchers manage livestock manure.

Using a small grant from Section 319 of the Clean Water Act and its own money, the Farm Bureau has hired Mark Peterson, a 35 year veteran of the Natural Resources Conservation Service (NRCS), to help farmers develop plans to better manage their animal manure.

"This is something that needs to be done and can be done," said C. Booth Wallentine, executive director, Utah Farm Bureau Federation.

The U.S. Environmental Protection Agency (EPA) has long identified agricultural runoff as the largest source of NPS pollution. Within agriculture, animal manure management is a major factor. As Utah becomes more urban, urban runoff issues will become more prominent. However, as urban Utah and rural Utah get closer together, the need for well managed animal operations will also increase.

To clean up the water, EPA has drafted rules that require large agricultural operations to reduce pollution and obtain a special permit. NRCS and EPA have developed a draft national strategy for managing livestock waste. The draft Concetrated Animal Feeding Operations (CAFO) strategy suggests that all animal feeding operations develop a comprehensive nutrient management plan. Many medium sized and almost all larger animal feeding operations will have to be permitted.

Peterson's job will include helping animal managers develop nutrient management plans and implement best management practices.

It is estimated that between 225 and 275 of Utah's largest farms and ranches will probably need water quality per-

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Farm Bueau Forms Water Quality Committee

In an effort to deal with growing concerns about water quality issues, the Utah Farm Bureau has formed a Water Quality Initiatives advisory committee.

The committee, comprised of Utah Farm Bureau leaders, representatives from agricultural commodity groups, and state and federal agency officials, is designed to help the state's farmers and ranchers better understand their role in a changing water quality picture.

"This is a developing process," said Ken Ashby, president, Utah Farm Bureau. "A lot of the water quality initiatives coming down from the federal government are not yet set in concrete." He went on to suggest that the decisions of the newly formed committee could have an impact on future water quality policy in the state.

One reason the committee's voice may be heard by policy makers is that Don Ostler, director, Utah Division of Water Quality and George Hopkin, chief, environmental quality section, Utah Department of Agriculture and Food, are both members of the advisory committee. 'Skip' Nelson, chief conservationist, Natural Resources Conservation Service is also a member of the committee. The three agency representatives

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probably be asked to participate in on-farm inventories, writing CNMPs, and technical assistance in implementing best management practices.

Meanwhile here in Utah, John and Maria Nye are ready now to write a CNMP and take whatever steps necessary to be in compliance. They will have to wait for a while because the final specifications for elements to be included in the management plan will not be completed until September.

Scott Sandall has more of a wait-and-see attitude. He has put expansion plans on hold until he knows how much it will cost him to come into compliance with the CAFO permit.

There are no easy answers for the Nyes or the Sandalls. In fact some answers may not even be available until the end on the Summer. One thing that is certain, *Utah Watershed Review* will bring you the information as soon as possible.

"Peterson" continued

mits when the program begins. This will include most of the turkey farmers in San Pete County, along with large feed lots and some dairies. Super large feeding operations, such as the Circle Four Farms hog operation in Beaver County, have already been permitted for a long time.

Many farm groups and government agencies in Utah have gotten together to write a Utah draft strategy for CAFOs that will be similar to the national strategy and yet unique to Utah.

The strategy will prioritize watersheds that need the most help. These are the areas Peterson will focus on first.

At the same time, the Utah Association of Conservation Districts Board of Directors has asked one of its regional coordinators to focus on animal manure issues throughout Utah.

While both coordinators plan to spend a lot of time on animal manure issues, they plan to help farmers with other water quality issues including grazing, stream bank erosion, and fertilizer application near waterways.

"Committee" continued

provide a powerful government link to the committee members representing production agriculture.

During the meeting Mark Peterson was introduced as the Utah Farm Bureau's first-ever water quality specialist. A 35-year veteran of the Natural Resources Conservation Service (NRCS), Peterson is uniquely qualified to work with government officials and individual farmers and ranchers in Utah.

"I'm excited about this new opportunity," said Peterson. One of the things I've liked best about my career at NRCS is working in the field with the farmers and ranchers." Peterson, who is still officially employed by NRCS, will start with Farm Bureau as soon as funds from a small EPA water quality grant become available, probably in May.

One of Peterson's first responsibilities will be to work with concentrated animal feeding operations and the new national CAFO strategy just released by EPA and USDA. One of Peterson's duties will be to help the state and federal agencies inventory animal feeding operations (AFOs) throughout the state to determine which operations meet the criteria to be regulated as CAFOs. The Utah Association of Conservation Districts has also dedicated a portion of the time of one of its employees, Ray Loveless, to water quality issues. The private sector involvement from Farm Bureau and UACD should help relieve some on the pressure on already overworked agency personnel.

"There are some issues ocurring now that are like nothing we've seen ever before since the inception of the Clean Water Act," said Ostler. He said that the amount of work before his agency and other agencies is daunting, to say the least.

For example, the national CAFO strategy calls for all animal feeding operations not permitted as CAFOs to voluntarily complete a comprehensive nutrient management plan (CNMP) and conduct best management practices designed to reduce water quality impairments. Yet, it is potentially an extremely large task to write CNMPs for every operation in the state.

"We've just done a workload analysis that shows a gap between what we already have to do and what our staff can do," said NRCS's Nelson. "I can see the responsibility of writing thes nutrient management plans being given to NRCS and we simply do not have the manpower to do it."

Two Dowtown Schools Celebrate Earth Day

Students at two inner city Salt Lake City schools celebrated Earth Day in late April with an Earth Day Fair and presentations from experts in a variety of natural resource interests.

Students got touch a snake, play environmental games, build a bird feeder out of pinecones and peanut butter, and learn about how the earth naturally filters water under ground.

Virginia Sligting and Jack Wilbur, Utah Department of Agriculture and Food, shared the water quality component of the fair with the students. The pair conducted their water filter experiment with eight classes of students during the two days at Lincoln and Jackson elementary schools.

Using a small plastic water or soda pop bottle with the bottom cut out, Wilbur and Sligting helped the students build their own water filter models. A small piece of nylon stocking was secured to the neck and mouth of the bottle with an elastic band. This is so that none of the contents spill out of the bottle. The layers of earth do most of the water filtering. The students packed their bottles with a layer each of sand, gravel and soil. Meanwhile, Wilbur and Sligting filled a large bottle with "dirty" water. When the students had finished building their models, a small amount of the dirty water was poured on top. Slowly the water worked its way through the layers of earth. The students held their model over a cup to catch the water and watched as slightly cleaner water came out of the bottom of the model.

Sometimes the dirty water is mixed with alum first to separate the solids from the liquid. This more closely replicates the process in a water treatment plant or septic tank drain field.

Virginia Sligting, Utah Department of Agriculture and Food, and Ashlie Wilbur, youth volunteer, demonstrate a "natural" water filter made of sand, gravel and soil.

Utah Watershed Review

Editor..Jack Wilbur

Editorial Review

If you would like to request an additional copy, make a comment or suggest a story or watershed focus idea, please call **Jack Wilbur** (801) 538-7098. Or write:

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A Continued Look at Utah's 303(d) List of Impaired Waters

Editor's note:

This is the second part of an on-going look at the state's 303(d) list of impaired waters.

Every two years the Utah Department of Enviromental Quality is required under Section 303(d) of the Clean Water Act. This list is active between April 1998 and April 2000.

In this installment, we continue our look at lakes on the 303(d)

Waterbody Name	Water-body Size Acres	Specific Pollutant	Priority for TMDL (High/Low)	Targeted for TMDL 4/98- 4/2000
Great Salt Lake Basin				
Utah Lake Drainage				
Big East Lake	**23**	**Total Phosphorus, Dissolved Oxygen, Temperature**	**Low**	**No**
Deer Creek Res.	**2,965**	**Total Phosphorus, Dissolved Oxygen**	**Low**	**No**
Mill Hollow Res.	**15**	**Total Phosphorus, Dissolved Oxygen, pH**	**Low**	**No**
Marshall Res.	**98**	**Dissolve Oxygen**	**Low**	**No**
Utah Lake	**96,900**	**Total Phosphorus, Total Dissolved Solids, Trophic State Index**	**Low**	**No**
Great Salt Lake Basin				
Weber River Drainage				
Causey Res.	**142**	**Dissolved Oxygen**	**Low**	**No**
East Canyon Res.	**173**	**Total Phosphorus, Dissolve Oxygen**	**High**	**Yes**
Echo Res.	**1,394**	**Dissolved Oxygen, pH**	**Low**	**No**
Pineview Res.	**2,874**	**Total Phosphorus, Dissolved Oxygen, Temperature**	**Low**	**No**
Willard Bay Res.	**10,000**	**Total Phosphorus**	**Low**	**No**
Great Salt Lake Basin				
Rush Lake	**80**	**Total Dissolved Solids, Total Phosphorus**	**Low**	**No**

Uintah High Wins 1999 Utah Envirothon

LOGAN – A team of six students from Uintah High School won the 1999 Utah Envirothon and will travel to Northern California this summer to represent the state at the national competition.

The Utah Envirothon was held April 30-May 1 in Paradise, Utah, in Cache County.

The winning Uintah High team takes part in the forestry identification portion of the competttion.

The Envirothon is a natural resource competition for high school students. As a team, the students are tested on their knowledge of the state's natural resources – soils, aquatics, forestry, wildlife and a current environmental issue, this year wildfire management. Students visit five in-the-field stations where written and hands-on problem solving is required. They also compete in an oral presentation event, where they are judged by a panel of seven experts.

Uintah High School team members Heather Marshall, Nathan MacLee, Riley Brinkerhoff, Ambre White, Crissy Tolman and Adam Tenderholt competed against 13 other high school teams at the state competition. The Uintah team was sponsored by the Uintah Soil Conservation District.

The students, accompanied by their team advisor and science teacher Tom Elder, will now go on to compete against more than 45 other teams from around the United States and Canada at the Canon Envirothon on July 27-Aug. 1 in Arcata, Calif., at Humboldt State University.

The Utah Envirothon is sponsored by the Utah Association of Conservation Districts, Utah Soil Conservation Commission, Utah Department of Environmental Quality, Campbell Scientific, Utah Chapter of Soil and Water Conservation Society, Utah State University College of Natural Resources, the Bridgerland Audubon Society and the Utah Chapter of Society of American Foresters.

"Natural resource education programs like the Envirothon help teach our children that they must become informed citizens and take an active role in wise use of our resource base on which we depend for all our food and fiber," said Bill Rasmussen, a member of the Uintah Soil Conservation District Board of Supervisors, which sponsored the winning team.

Here, participants are identifying aquatic insects that were removed from the bottom of the stream.

Total Conference Package
$75.00
(Includes Barbeque)

1999
Utah Nonpoint Source
Water Quality
Conference
"Experience Your Watershed: Hands-on Water Quality "

AGENDA

Conference Hotel - Ogden Marriott

Monday, August 2

12:00 noon — 4:00 p.m. Water Quality Board & Soil Conservation Commission Luncheon & Meetings

Three Conservation Workshop Tours Each Day

(Teachers can earn 0.5 in-service credit hours for every 7 hours of instructions and hands-on activities. Certified Crop Advisors can also earn CCA credit by attending the conference.)

Tuesday, August 3

6:30 a.m. — 7:30 a.m. Breakfast Buffet & Registration
7:30 a.m. Welcome - George S. Burbidge, Ph.D., Administrative Services Director, Weber County

7:45 a.m. Load busses for one of the three tours

Tour 1 - Volunteer Stream Monitoring (All day tour)

Get your feet wet while learning how you can monitor the health of your stream. We'll monitor two very different sites and learn how **to assess the physical, biological and chemical health of water bodies and** what **these techniques tell us about a water body. Participants will receive a packet of instructional materials on water quality monitoring techniques and interpretation and additional resources for hands-on activities. Box lunch provided.**

Tour 2 - AFO/CAFO Nutrient Management (All day tour)

Want to know more about AFO's, CAFO's, TMDL's, Composting, and Nutrient Management? Come with us and visit a couple of dairy operations and see first hand. Lunch at Combe Dairy and Deli. A 1-hour wrap-up session back at the hotel.

Tour 3 - Wildlife, Wetlands, and Water Quality (Half-day tour, lunch and afternoon session at hotel)

Learn how water quality affects wildlife and the role wetlands play in enhancing water quality during a morning field trip to Ogden Bay Waterfowl Management Area. Lunch at the conference hotel will be followed by presentations on how wetland processes and wildlife management affect water quality, and programs that support landowner initiatives in wildlife habitat and wetland restoration.

Conference planners will assign a different workshop tour each day until each registrant has taken all three tours at the end of the conference. The busses will be staffed with local guides and technical people to address questions.

Wednesday, August 4

6:30 a.m. — 7:30 a.m. Breakfast Buffet & Registration
7:45 a.m. Load busses for one of the three tours

6:30 p.m. **Barbeque - Fort Buenaventura State Park**

Thursday, August 5

6:30 a.m. — 7:30 a.m. **Breakfast Buffet & Registration**
7:45 a.m. **Load busses for one of the three tours**

Adjourn

A breakfast buffet will be served each morning along with refreshment breaks mid-morning and afternoon. A gardenburger is available at the barbeque for those who do not want steak.

Registration Form

(Please print)
Name____**Title**_________________________________
Organization____
Companion's Name____
Address____
City___________________________________**State**__________________**Zip**___________________
Telephone______________________**FAX**__________________**E-mail**___________________________
Special physical or dietary needs____

Full Registration (*Including Barbeque*) **No.**________ **@ $75.00 $**__________
Conference Only **No.**________ **@ $60.00 $**__________
Barbeque Only (*Steak or Gardenburger*) **No.**________ **@ $15.00 $**__________
Late Registration Fee (*After July 16, 1999*) **@ $10.00 $**__________
TOTAL $___________

A $10.00 late fee will be charged for all registrations postmarked after July 16, 1999

Make checks payable to: "**NPS Task Force**"

Mail Registration sheet to: **Virginia Sligting, NPS Conference**
C/O Utah Department of Agriculture & Food
P. O. Box 146500
Salt Lake City, UT 84114-6500

Earn Credit (Teachers & Certified Crop Advisors)

Teachers can earn 0.5 in-service credit hours for every 7 hours of instruction and hands-on activities.
Certified Crop Advisors, CCA credit will also be available for those attending the conference.

Starting a Backyard Compost Pile

This is the first part in a series of instructional articles about backyard composting. The material in this story is from Utah State University Extension Service. For more information about this and other topics, visit the Extension web site at: http://ext.usu.edu.

During the growing season , 30% or more of landfill waste is organic yard refuse. Home composting of yard and garden trimmings eases landfill problems and "recycles" these organics into a a valuable soil amendment. The benefits of using compost as a soil amendment include increasing soil tilth, fertility, water holding capacity, aeration and drainage.

Composting is the aerobic, or oxygen-requiring, decomposition of organic materials by microorganisms under controlled conditions. Bacteria start the process and are responsible for protozoans, earthworms, centipedes, beetles, and millipedes assist the bacteria in breaking down plant tissues. During composting, microorganisms consume oxygen while feeding on organic matter. Active composting generates considerable heat, and large quantities of carbon dioxide (CO_2) and water vapor are released into the air. The CO_2 and water losses can amount to half the weight of the initial materials, thereby reducing the volume and mass of the final product.

What Happens During Composting

Composting begins as soon as the raw materials are mixed together. During the initial stages of the process, oxygen and the easily degradable components of the raw materials are rapidly consumed by the microorganisms.

The temperature of the windrow or pile is directly related to microorganism activity and is a good indictor of what is occurring on the inside of the pile. The temperature of composting materials generally follows a pattern of rapid increase to 120-140° F. The material usually maintains that temperature range for several weeks depending on conditions. As active composting slows, temperatures will gradually drop until the compost reaches ambient air temperatures.

Selecting the right type of compost pile for your location, time and budget

The composting process is affected by the compost pile site, compost container type and size, raw materials, and the amount of water and oxygen in the materials.

Step 1 – Select Composting Site: A good location is helpful for a successful compost pile. The compost pile should be exposed to at least six hours of sunlight each day. The location should not detract from the landscape. Water should be readily available. Good drainage is important; otherwise, standing water could slow or stop the decomposition process.

Step 2 – Select Compost Container: Many containers are suitable provided they are accessible, resist decay, and allow air flow. How do you decide which container will work best for you? Consider the amount of time and space you have, and the quantity of materials you will be composting. Most compost containers fall into one of these categories: heaps (simple stacked piles), hoops (caged enclosures), bins (boxed enclosures), and barrels (drum enclosures).

For fast, hot compost, the ideal pile size is one cubic yards (3 feet x 3 feet x 3 feet). This volume effectively retains the heat generated by the bacteria. The volume of a single pile should not exceed two cubic yards in order to maintain proper ventilation of the pile. If space is a limiting factor, the pile sides can be insulated so that higher temperatures can be maintained in a smaller volume.

Heaps 'O Compost: A simple pile or heap is a great solution if you have ample space and don't want to spend money on a compost structure. Simply pile your materials in heaps, ideally at least one cubic yard in volume. If well constructed, heaps are good for "no turn" composting. Just leave the pile for several months or more.

Hoop it up: The hoop container is a low cost structure that offers a tidier pile than heaps offer. Woven wire mesh or fencing make good enclosures and keep the pile tidy. If you secure it with hooks or twists of wire, you can undo the hoop, set it up next to the pile, and turn the pile back into the hoop in its new location.

Box it: Some people prefer building or buying a box for compost because it looks good (the pile of compost isn't easily visible) and it can be fairly inexpensive. You can use almost any type of scrap or new lumber, bricks, or cinderblocks to build an attractive and functional bin for compost. Make sure to leave spaces in the sides for air to get through. Make the front of the box removable for easy access to turn or retrieve the compost. Construct several bins side-by-side to facilitate turning of the compost.

Roll out the barrel: The barrel is a good solution if your space is limited. However, it has a moderate to high cost attached to it. A modified 55-gallon bin usually works well as the barrel. By perforating the drum with air holes and cutting an access hatch on the side, you can create a system which will compost small amounts of material quickly. Usually these systems are equipped with a stand and rollers to facilitate turning, although some people just roll their barrel around the yard to achieve the same effect.

Select Raw Materials

Almost all natural, organic material will compost, but not everything belongs in the compost pile. Some wastes attract pests; others contain pathogens that can survive the compost process. Table 1 lists acceptable and unacceptable materials for home composting.

Table 1. Acceptable and unacceptable raw materials.

Acceptable	Not Acceptable
Grass Clippings	Meats
Leaves, weeds	Bones
Manures	Large branches
Coffee grounds	Dairy products
Wood chips, sawdust	Synthetic products
Bark, stems, stalks	Plastics
Garden and canning waste	Pet wastes
Fruits and vegetables	

Another consideration in choosing materials to go into the compost pile is the time they need to break down. Woody materials, such as chips, branches, twigs and paper can take up to two years to decompose unless they are finely chipped or shredded. Chopping your garden trimmings with a shovel or machete, or running them through a chipping machine or lawnmower will speed their decomposition. Optimum composting conditions are obtained with particle sizes ranging from 1/8 to 2 inches average diameter.

The compost pile will require carbon-rich and nitrogen-rich materials for efficient decomposition. Microorganisms use carbon for both energy and growth, while nitrogen is essential for growth and reproduction. Carbon is found in dry, brown materials, such as leaves, chipped woody brush, sawdust, and straw. Nitrogen is most abundant in fresh, green yard and garden trimmings, vegetables scraps, and livestock manures. The proper compost mixture contains about 2 parts carbon-rich material to 1 part nitrogen-rich material. Do not put pet wastes in your compost pile.

If the pile has too little carbon, the available carbon is fully used without stabilizing all of the nitrogen, which can lead to the production of excess amonia and unpleasant odors. If the pile has too little nitrogen, the composting process slows dramatically. This is because there is not enough nitrogen available for the growth of microorganisms. If additional nitrogen is needed, add approximately 1 pound of actual nitrogen to each cubic yard of material being composted. Mix the nitrogen with the compost as the pile is contructed. Table 2 lists the nitrogen content of various materials and conversion rates for use with 1 cubic yard of compost.

Table 2. Amounts of various nitrogen sources needed to supply 1 pound of nitrogen

Source	%Nitrogen	Cups to Apply
Urea	46	4
Ammonium nitrate	33	6
Calcium nitrate	15	13
Dried blood meal	12	16
Fish meal	10	20

Aerating the Pile

Aerobic composting consumes large amounts of oxygen, particularly during the initial stages. If the supply of oxygen is limited, the composting process may turn anaerobic, which is a much slower and more oderous process. Oxygen levels within the windrows or piles may be replenished by lifting and turning the materials with a pitch fork or a mechanical turner. Try to put the outside, drier piles into the center when turning the pile. Turning a pile weekly can produce compost in one to two months (with the right combination of materials and moisture level). Monthly turning usually produces compost in four to six months. Without turning, composting may take six months to two years. Aeration is generally the main factor affecting the time necessary to produce finished compost.

Keeping the Pile Moist

Moisture is necessary to support the metabolic processes of microorganisms. Composting materials should be maintained within a range of 40 percent to 65 percent moisture. As a rule of thumb, the materials are too wet if water can be squeezed out of a handful of compost and too dry if the handful does not feel moist to the touch. If the compost pile is too dry the process slows down. If the pile is too wet water will displace air in the pore spaces of the composting mate-

Continued next page

rials which limits air movement and leads to anaeroribc conditions. Moisture content generally decreases as composting proceeds; therefore, you may need to periodically add water to the compost.

Keeping the Pile at the Proper Temperature

Composting will essentially take place within two temperature ranges known as mesophilic (50°-105° F) and thermophilic (over 105 degrees F). Keeping the temperatures between 110° and 150° destorys more pathogens, weed seeds, and fly larvae in the composting materials.

If the temperature of your compost pile is in the mesophilic range, try mixing the pile. If the temperature still does not reach the thermophilic range, review the steps described above to determine whether one or more of the essential factors is limiting the composting process. If you are still unable to increase the compost's temperature, the active stage of composting is complete.

Curing

Finished compost is dark, crumbly, and has an earthy and non-offensive odor. Pile temperature in finished compost may still still be slightly higher than ambient air temperature. Most finished composts will benefit from an additional curing phase. Curing refers to leaving finished compost in a pile undisturbed for up to a month to allow any final chemical and decomposition reactions to occur and stabilize the compost. Curing ensures that the composting process is indeed complete. View the curing phase as extra insurance against problems arising from using compost.

Catalyst Training Continues Throughout Utah

South Davis Junior High students wade in Mueller Park Creek . One student kicks up rocks and the other stands a few feet down stream with a kick net to catch the insects.

Water quality stewardship and interpersonal communication training go hand in hand as Community Catalyst Training continues with young Utahns.

In late April representatives from the Utah Federation for Youth and the Utah Department of Agriculture and Food returned to Ephraim for a second round of training with students at Sanpete Academy, an alternative high school that services both school districts in the county.

In the midst of one of the wettest springs in recent history, the decision was made to continue with the planned field trip to Six Mile Creek and Palisade Reservoir on the first day. Fortunately, Mother Nature smiled upon the group and sent sunshine to the canyon.

The first stop was Six Mile Creek, where the students divided into three groups. Each group took turns measuring the physical characteristics of the creek, testing water chemistry, and gathering macroinvertebrate samples from the bottom of the stream.

Each group of youth got to decide which job each person in the group would be responsible to complete. Some of the students put on chest waders and got out into the stream, some of the students read instructions about the tasks to be performed, and others recorded and calculated the data collected from the stream.

Physical Characteristics of the Stream

In order to determine the velocity of the stream, students measured the width, depth and flow of the water three times each. They then took averages and calculated the stream velocity. Even though they could tell that the stream was flowing quickly, they were amazed at the calculation of 11 cubic feet/second in that small canyon.

Basic Water Chemistry

Another surprising fact to the students was that there was a lot of dissolved oxygen in the water. Because of the high runoff during spring snow melt and directly following several days of heavy storms, the water was quite muddy looking. Yet the dissolved oxygen test that the students performed show a lot of oxygen. As the students talked about their findings they decided that fast current probably was generating the oxygen, despite the turbidity level.

Macroinvertebrates/ Stream Biology

The hit of the day was the macroinvertebrate investigation. To collect the bugs from the stream.

Certain insects that live under the rocks and silt in the bottom of the stream can generally indicate water quality.

For example, Mayflies cannot tolerate very much pollution. So, if there is an adundance of mayflies, the quality of the water is probably fairly good.

This day the students from Sanpete Academy found that the mayflies were plentiful and that there is plenty of dissolved oxygen in the water.

Monument Valley Catalyst Training, May 14-15

In mid-May the group of facilitators took their unique cross-curriculum training to the extreme southeast corner of the state.

Kari Cutler and Anya Szegvari conducted the substance abuse awareness, diversity training and conflict esolution, personality profiles. Jack Wilbur, Utah Department of Agriculture and Food, and Shelly Quick, Utah Division of Water Quality, lead the water quality testing in the San Juan River at the town of Mexican Hat, Utah.

Because of the size of the river, some of the Adopt-A-Waterbody could not be completed. Yet the Navajo youth seemed to enjoy the experience.

The following Monday and Tuesday the Catalyst road show travelled to Bountiful to work with children at South Davis Junior High.

The Adopt-A-Waterbody activities were performed at Mueller Park Canyon above the city.

Back in a mountain creek, the catalyst trainers were able to help the students collect aquatic insect samples from the bottom of the creek bed. Interestingly more young women by far got into the stream to collect insects than during any other catalyst training.

Physical characteristics of the stream are tested in many ways, including measuring width, depth and velocity.

These two students are testing water quality in Mueller Park Creek. This is a test for dissolved oxygen. Sometimes groups test for nitrate and phosphate levels in the water as well. Even when physical and biological testing are not feasible, chemical testing can be conducted. The chemistry kits are also relatively small and easy to carry.